



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**Caterpillar AMY FRANCES**

Component  
**Starboard Main Engine**

Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (220 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0058206</b>	MW0058267	MW0044458
Sample Date		Client Info		<b>22 Dec 2023</b>	05 Nov 2023	14 Oct 2023
Machine Age	hrs	Client Info		<b>40000</b>	40073	39594
Oil Age	hrs	Client Info		<b>146</b>	650	480
Filter Age	hrs	Client Info		<b>146</b>	650	480
Oil Changed		Client Info		<b>Changed</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Changed</b>	Not Changd	Not Changd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>3</b>	3	2
Chromium	ppm	ASTM D5185m	>8	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>14</b>	14	14
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>1</b>	<1	1
Lead	ppm	ASTM D5185m	>18	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>80	<b>2</b>	<1	<1
Tin	ppm	ASTM D5185m	>14	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

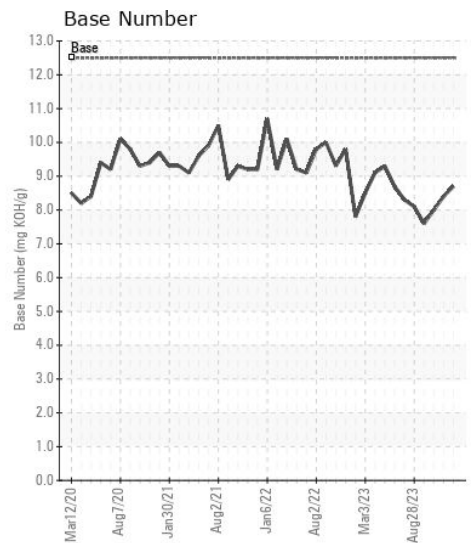
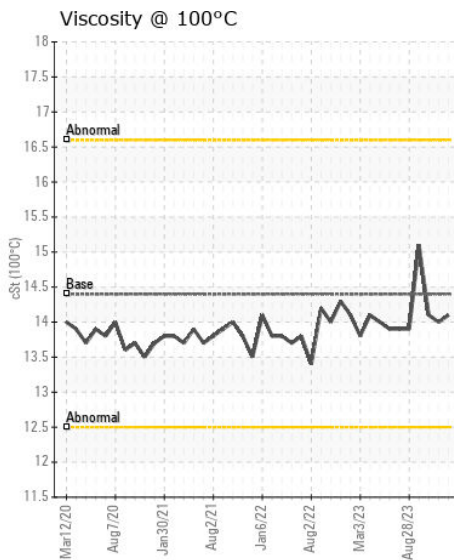
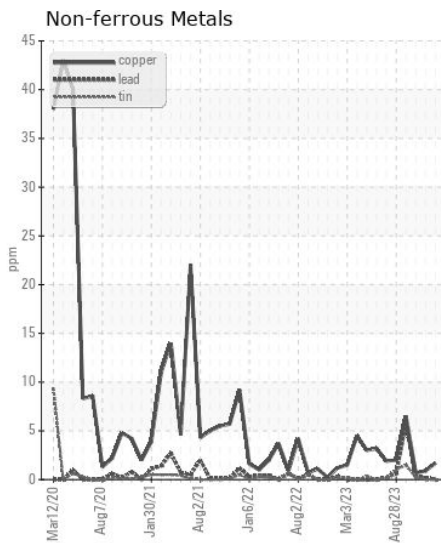
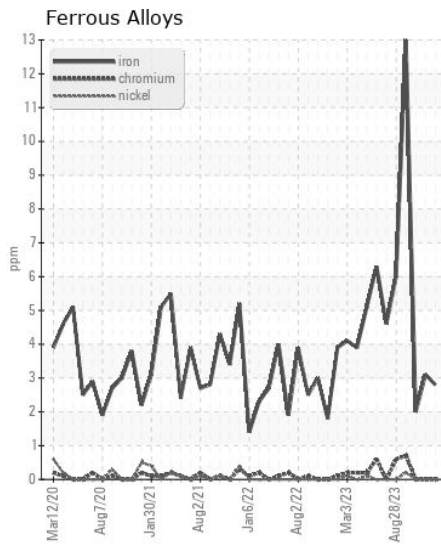
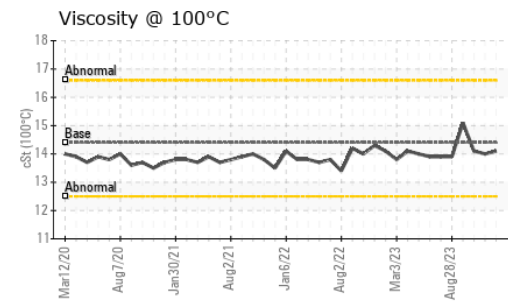
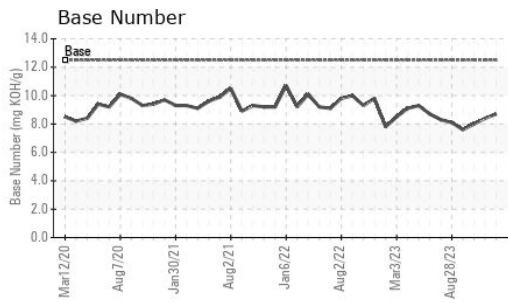
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>4</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	2	3
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.6</b>	8.1	7.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>17.8</b>	18.2	17.8
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>2</b>	1	1
Boron	ppm	ASTM D5185m	151	<b>93</b>	101	85
Barium	ppm	ASTM D5185m	0.4	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	250	<b>29</b>	31	26
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m	0	<b>676</b>	821	718
Calcium	ppm	ASTM D5185m	2046	<b>1537</b>	1763	1440
Phosphorus	ppm	ASTM D5185m	1043	<b>697</b>	827	674
Zinc	ppm	ASTM D5185m	943	<b>784</b>	1010	788
Sulfur	ppm	ASTM D5185m	5012	<b>3072</b>	3711	2960
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>12.1</b>	13.2	12.5
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	<b>8.7</b>	8.4	8.0
Visc @ 100°C	cSt	ASTM D445	14.4	<b>14.1</b>	14.0	14.1



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0058206 **Received** : 16 Jan 2024  
**Lab Number** : 06061668 **Diagnosed** : 17 Jan 2024  
**Unique Number** : 10833050 **Diagnostician** : Don Baldrige  
**Test Package** : MAR 2

**MAGNOLIA MARINE TRANSPORT**  
 697 HAINING ROAD  
 VICKSBURG, MS  
 US 39183  
 Contact: MMT MAINTENANCE PLANNERS  
 mmtmaintenanceplanners@ergon.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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